

Claims

5 What is claimed is:

1. An apparatus for cleaning dental instruments such as endodontic files or the like which need to be repeatedly withdrawn and replaced while performing a procedure such as a root canal on a patient, and wherein the dental instruments have a handle portion and
10 a distal working end portion that needs to be cleaned and maintained in all aseptic condition both during use while repeatedly withdrawing and replacing the instruments during the procedure, the apparatus comprising:

a sealed container having contained therein a disinfecting solution,
the container having about an upper portion thereof a cap for preventing the disinfecting
15 solution from leaking out of the container; and,
an agitator for agitating disinfecting solution within the container when an instrument is inserted and withdrawn from the container so as to clean the dental instrument.

20 2. The apparatus as defined in claim 1, wherein the cap for preventing the disinfecting solution from leaking out of the container is a membrane about an upper portion of the container, and wherein the membrane allows the distal working end of the instruments to be repeatedly withdrawn and re-inserted into the container without bending, blunting or
25 damaging the distal working end, and wherein the membrane substantially prevents fluid from leaking out if the container is tilted.

3. The apparatus as defined in claim 2, wherein the membrane is sufficiently strong and dense to clean debris from the distal working end of the instrument as it is removed from the container.

4. The apparatus as defined in claim 1, wherein the cap for preventing the disinfecting solution from leaking out of the container is a plug within an upper portion of the container, and wherein the plug allows the distal working end of the instruments to be repeatedly withdrawn and re-inserted into the container without bending, blunting or
5 damaging the distal working end, and wherein the plug substantially grips the distal working end and prevents fluid from leaking out if the container is tilted.

5. The apparatus as defined in claim 2, wherein the membrane is sufficiently strong and dense to both clean debris from the distal working end as it is removed from the
10 container.

6. The apparatus as defined in claim 1, further comprising loose granular material within the disinfecting solution which when agitation occurs by said agitator will impact against the distal working end of the instrument so as to loosen or remove unwanted debris and
15 clean the working end.

7. The apparatus as defined in claim 2, further comprising loose granular material within the disinfecting solution which when agitation occurs by said agitator will impact against the distal working end of the instrument so as to loosen or remove unwanted debris and
20 clean the working end.

8. The apparatus as defined in claim 6 wherein the loose granular material is an inorganic material.

9. The apparatus as defined in claim 8 wherein the loose granular material is one of:
25 glass beads, plastic beads, sand, silica, plastic particles.

10. The apparatus as defined in claim 1, wherein the agitator comprises an electronically controllable ultrasonic transducer and control circuitry coupled therewith.
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11. The apparatus as defined in claim 1 further including a heater for heating the fluid within the container.

12. A method for cleaning an endodontic tool during an endodontic procedure,

5 comprising the steps of:

removing the tool from within the patient's tooth;

disposing the tool into a container having contained therein a disinfecting solution that is being agitated by an electronic agitator;

10 withdrawing the tool from the solution and during withdrawal passing the tool through a wiper at an upper end of the container, so as to clean left over debris off the tool;

and,

re-inserting the tool in the patient's tooth.

13. A method as defined in claim 12, wherein the agitator is a vibrating agitator.

14. A method as defined in claim 12 wherein the container is a sealed container and wherein the tool is inserted through a sealing cover of the container.

15. A method as defined in claim 13, wherein the agitator is an ultrasonic agitator.

16. A method as defined in claim 13, wherein the disinfecting solution has therein, loose abrading particular matter, for impinging upon the tool as agitation occurs.

17. A portable cleaner, for cleaning endodontic tools, comprising:

25 a container having contained therein a disinfecting solution,

the container having about an upper portion thereof a cap for preventing the disinfecting solution from leaking out of the container; and,

a battery powered holder for holding and providing agitation to the disinfecting solution when it is placed within the holder.

18. A portable cleaner as defined in claim 17, further comprising particulate matter including at least one of sand, glass beads, silica particles, sand, and plastic particles, disposed within the solution for impinging upon an endodontic tool disposed within the container when agitation is provided.

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19. A device as defined in claim 1, wherein the container is disposable and wherein means are provided for securing the container within a base containing the agitator such that the container is fixedly held and secured against a transducer element.

10 20. A device as defined in claim 19, wherein the container has wall in one portion that are substantially thicker than in another portion, and wherein said another portion is contacting the transducer element when fixedly held.